Towards an Eco-Marxism

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Abstract:

For about the last ten years, a steadily growing stream of publications is feeding a fascinating international debate on the development of an Eco-Marxism. In this paper, the attempts to 'ecologise' Marxism are critically discussed, starting with John Bellamy Foster's path-breaking reconstruction of Marx's concept of 'metabolic rift' and the Marxian analysis of the privatisation of the commons. Although Marx's understanding of the limits of nature is only partial, authors such as Paul Burkett have convincingly shown a reconstructed Eco-Marxism follows the fundamental tenets of ecological economics. This approach can also fruitfully inform the development of an ecosocialist political project.

Bio:

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Introduction

Many ecologists seem to be sure about it: Marxism largely missed the ecological question and has little to contribute to it. Of course, many Marxists have paid lip service to the struggle for the environment. However, a number of important exceptions notwithstanding, the environmental movement has developed over the last forty years without much noteworthy practical or theoretical involvement on the part of a great majority of Marxists. This is in itself surprising, in view of the influence and attractiveness that Marxism has exerted with regard to other 'new' issues such as globalisation, feminism, the struggle of oppressed peoples, and so on.

Various hypotheses can be advanced to account for the seeming lack of genuine involvement in the ecological struggle by many Marxists. Firstly, in political terms: when the new left-wing generation of the '60s and '70s thought that the revolution could triumph in Europe, environmental demands, which they started to acknowledge, still seemed too partial, immediate and secondary compared with the crucial social struggle. When this boundless optimism began to wane, and the preoccupation was with resisting the neoliberal wave from the late '70s onwards, the ecological crisis increasingly took on the appearance of a global problem that could only be resolved via fundamental social change. Marxists consistently clung to an excessively narrow conception of social struggle.[1] Their strategic framework was based on the emancipatory aspirations of a wide range of oppressed groups, but tended to overlook the fact that it is not just groups of people that are impacted by present-day society, but nature too.

There was also something missing in the theory and the social analysis. Part of the most critical and creative European Marxism of the first half of the twentieth

century, that of Lukács and Korsch (who would later have a considerable influence on the Frankfurt School) lacked any conception of nature. A number of authors, such as Adorno, Horkheimer or Benjamin, wrote some fascinating philosophical pieces on nature, its degradation and instrumentalisation. A number of classical Marxists such as Luxemburg, Lenin, Kautsky, or Bukharin displayed a critical awareness of ecological problems in some of their writings. Many provided elements of an ecological conception, but few really put the ecological critique of capitalism as central as some contemporary Marxists do now.[2] With a number of important exceptions (such as Barry Commoner, Rudolf Bahro, Elmar Altvater etcetera), few 20th century Marxists really incorporated the ecological question into the heart of their thinking. And then we have not yet said anything about 'actually existing socialism', to which some of the worst environmental disasters can be ascribed.

Among ecologists, there is an understandable critical reserve towards a current of thought which at first sight appears to have little to contribute to the pressing ecological struggle. Moreover, knowledge of Marxism in general and more in particular of its most ecological representatives often remains superficial within the environmental movement at best. Many greens attribute the limitations of Marxism to the supposed productivism and Promethean belief in progress of the movement's founders. They too take the line that Marx is dead, as so many believed after 1989. The number of announcements of the death of Marx is now beyond count, yet there is something slightly suspect about this, argued Jacques Derrida in his fascinating book *Spectres of Marx* from 1993.[3] Marx may be dead, but his spectres are being continually invoked, it turns out. And this is no coincidence: while capitalism continues to create social injustice, this will remain the case. However, anyone wishing to invoke Marx today, Derrida believes, has to recognise that there are many

spirits of Marx, and that we need to be selective and creative in our handling of this 'legacy'. This is not the kind of legacy you can live off as a rentier. There is no one Marxism, no one system: Marxism is a patchwork quilt of concepts, theories, practices and experiences.

For about the last ten years, there has been a single, fragile, but real thread in that quilt which is gaining increasing attention: that of the ecologisation of Marxism. A steadily growing stream of publications is feeding an international debate which is becoming ever more fascinating (with authors such as John Bellamy Foster, Paul Burkett, Michael Löwy, David Harvey, Joel Kovel, James O'Connor, Mike Davis etcetera).[4] The reason for the debate's existence is obvious: it is no coincidence that the first signs of the environmental crisis as we know it today emerged when the societal form was also coming into being that Marxism seeks to comprehend: the capitalist mode of production.

In the following, I discuss the attempts to 'ecologise' Marxism. In particular, I will focus on the concept of metabolic rift that John Bellamy Foster found in Marx's work, and on the problem of safeguarding the commons and of respecting nature's limits. Furthermore, I will consider some of the most important contemporary debates, such as that with ecological economics, and that about ecosocialism.

Metabolic rift

Many Marxists have rightly adopted a modest stance in the debate about Marxism and ecology. Their first aim was not merely to 'Marxise' ecology, but especially to 'ecologise' Marxism. This was also the original objective of John Bellamy Foster,

chief editor of the American journal *Monthly Review*, when he worked on a book on Marx and ecology in the '90s. His original intention of identifying and remedying the ecological hiatuses in Marx's theory was gradually modified. The title of his book '*Marx's Ecology*' thus contains the bold contention that the foundations for an ecological theory can in fact be found in Marx.[5]

Various points are covered in his book: Marx's materialism (people are part of the matter or nature that surrounds them), his interest in Darwin, his polemic against Malthus. However, what makes this book a milestone in the development of an ecological Marxism is the analysis of the key concept of the metabolism between man (or society) and nature, and of what Marx called the 'metabolic rift'. According to Foster, these forgotten concepts, which lie at the heart of Marx's societal diagnosis, provide fertile soil for a better understanding of the environmental crisis from within a Marxist framework, i.e. for the attempt to reconnect the theoretical analysis of the capitalist mode of production with its natural prerequisites.

The concept of metabolism [*Stoffwechsel*], which is also crucial today in the ecological debate, was introduced around 1815 by physiologists with reference to the physical exchange processes within the body. The well-known German chemist Justus von Liebig (1803-1873) extended the concept to cover a series of natural cycles. Among other things, it is central to his damning critique of British agriculture. Liebig analysed the way in which irrational farming methods in 19th-century Great Britain were depleting the soil. Put simply, the nutrients that crops contained were consumed in the city (London), without being able to return to the soil. The soil was becoming depleted, while the Thames was becoming polluted. The natural cycle had been irreparably breached. The only way to compensate for this was by importing soil nutrients from elsewhere: in the 1840s, for example, hundreds of thousands of tons of

guano were transported from Peru to England. As a result, the disruption of natural cycles became a phenomenon on a global scale, taking place not just between city and countryside, but also between North and South.

During his research for *Capital*, Marx had read authors such as Liebig too, and drawn far-reaching conclusions from them. He picked up on the chemist's concrete analyses and made them the basis for a more general diagnosis. According to Marx, the "destructive side of modern agriculture" had irreparably upset the metabolism between man and nature. Capitalist production "disturbs the circulation of matter between man and the soil",[6] yet this latter derives from the natural laws of life itself.[7] "(A)ll progress in capitalist agriculture is a progress in the art, not only of robbing the labourer, but of robbing the soil; all progress in increasing the fertility of the soil for a given time is a progress towards ruining the lasting sources of that fertility. The more a country starts its development on the foundation of modern industry, like the United States, for example, the more rapid is this process of destruction."[8]

The simultaneous growth of large-scale industry and agriculture lies at the basis of what Marx started referring to in a number of his most scientific texts as the 'rift' in the metabolism. He describes the metabolism as the process of material exchange between man and nature which takes place in every form of production, not just in individual working processes, but also at the level of the economic system as a whole. In certain forms of production, however, the economic cycle and the natural cycle become imbalanced. For the first time, capitalism makes this process of metabolism a global, world-spanning phenomenon, but at the same time profoundly disrupts it.[9]

The mechanisms set in motion by capitalism in response only serve to exacerbate the problem: the commercialisation of the produce of the land and long-

distance trade reproduce the problem on a global scale. The very fact that seeds, fertilisers and other natural products had to be imported, argued Marx, demonstrated that capitalist agriculture was no longer self-sufficient, but that an industry which answered to commercial imperatives alone had even been made out of its natural conditions.[10] Despite much scientific progress, Marx claimed that capitalism had proven incapable of maintaining the resources of the soil. A crucial task for the construction of an alternative societal model would therefore be that "the associated producers govern the human metabolism with nature in a rational way."[11]

Capitalism in fact attempts to do the impossible: to turn away from the human dependence on nature by turning nature into private property:

> From the standpoint of a higher economic form of society, private ownership of the globe by single individuals will appear quite as absurd as private ownership of one man by another. Even a whole society, a nation, or even all simultaneously existing societies taken together, are not the owners of the globe. They are only its possessors, its usufructuaries, and, like *boni patres familias*, they must hand it down to succeeding generations in an improved condition.[12]

The expropriation of the commons

The rift between human activity and its inorganic, natural conditions, which only becomes complete within the capitalist mode of production, is the consequence of a historical process, according to Marx, and must be explained accordingly.[13] Paul Burkett, another pioneer of Eco-Marxism, shows how this rift results from a process

that lasted a number of centuries, and which ultimately, from the late 18th century onwards, made the development of the capitalist mode of production possible.[14] This process is what Marx referred to in abstract terms as "the separation of the producers from the conditions of production" (and which he analysed in his early work under the term "alienation"[15]). Often, the conditions of production are defined too narrowly in Marxist discourses, purely in terms of property relations. For Marx, however, this process is not just about a separation of the workers from the means of production, which become private property, but also from the natural conditions of the production process.

According to Marx, capitalism originated on the basis of "primitive accumulation": the pillaging of existing resources and the plundering of the commons. This was a historical process, which in England, for example, took the form of the enclosures: common land was appropriated by large landowners, and small local farmers were forced to move to the city as waged labourers. This private seizure of the commons lay at the basis of various phenomena: the emergence of large-scale capitalist agriculture, the exacerbation of the opposition between town and country (and then between North and South), and the genesis of the modern classes of bourgeoisie and proletariat.

Whereas farmers used to work on a small scale, tied to their ecological niche, the incipient capitalism began to prise apart this link: labour, land and tools were separated and entered into the market as commodities competing with one another. In this way, the capitalist mode of production is the first in history in which the economy is, as it were, an autonomous domain, with specific laws which are investigated by a separate science of economics. Previously, production had been embedded in a religious, political and ecological context, but the logic of market competition now

forces units of capital to make abstraction of this context and develop seemingly blindly.

This produces a number of mechanisms which are ecologically destructive. A growing gap develops between the enormous accumulation of capital and the ever faster cycles of capital on the one hand and the limitations of the earth and the slower cycles of the ecosystem on the other.[16] Capital penetrates ever further into all areas of human life, continually creates new needs, and reduces everything to its market value. The recurrent overproduction crises are coupled with large-scale destruction of goods and capital. The concerted rationality employed by individual capitalist businesses in 'scientific management' in order to make as much profit as possible contrasts with the overall irrationality of the system, which takes no account of human or natural needs.[17]

The clear link between the development of capitalism and ecological catastrophe does not mean that there were no environmental crises in precapitalist societies. However, these usually remained limited to the local area (e.g. the depletion of the soil, the burning of forests). With the arrival of the global systemic logic of capitalism, however, the environmental crisis has likewise become global.

Despite its attempt to pull free of the ecosystem, the capitalist economy remains fundamentally dependent on nature. Its tendency to make abstraction from this dependence inexorably leads to the exhaustion of nature. This is the core of Marx's theory of the metabolic rift. Although the theory is incomplete, its importance is real, since it demonstrates that the environmental crisis is not a crisis of nature, but of society, and more specifically of the relationship that society has had with its natural conditions for the last two hundred years or more. It shows how the social and ecological questions are fundamentally linked: the historical process that brings about

the modern rift between rich and poor is also the process that created the rift between man and nature. Both labour and nature are sources of wealth,[18] and both are being exhausted by capitalist accumulation.

Society and nature appear to be distinct entities in capitalism, but cannot actually be separated. This is what a scientific analysis ought to show. On the basis of such a metabolic perspective, it ought also to be possible to show how every social phenomenon, every social relationship, every social crisis always implies a certain relationship with nature.[19]

This is not to say that the ecological question can be reduced to a social question. After all, important ecological struggles exist, such as that for biodiversity, which are not immediately a social struggle: the ecological question and struggle have a certain autonomy. There is an ecological consciousness that cannot be reduced to a social (class) consciousness, but can be present in some shape or form in all layers of the population. Inversely, the resolution of the social question (socialism) is not sufficient to resolve the ecological question. What is clear, however, is that a different relationship between society and nature presupposes a different social structure, which makes it possible to remove the separation between producers and production conditions as much as possible. Thus the environmental problem cannot be confined to a problem of individual choices within the existing framework (as in certain forms of liberalism) or of the number of people on the planet (Malthusianism). These two latter factors are in fact inseparably linked with the society's mode of functioning.

Tragedy

Naturally, the overturning of traditional, community-based forms of production and the private appropriation (or alienation) of the commons by the property-owning class was associated with widespread popular resistance. Mass resistance movements arose against the privatisation of the forests, for example (which in fact represents the first step towards the privatisation of other energy resources such as coal and oil). It is no coincidence that the young Marx, in one of his first articles, opposed the prosecution of those who gathered wood in what had formerly been communal forests.

Garrett Hardin argued in his *Tragedy of the Commons* that the commons will be irrevocably plundered by 'freeriders' unless it is clear who is the responsible owner. The true 'tragedy of the commons,' however, appears to result from its private appropriation, and the large-scale monoculture farming that ensued historically. It is only the poverty that resulted from private ownership that lay at the basis of the later plundering of the woods by the common people.[20]

The awareness of the problem of the commons was also present in the popular struggle against privatisation. In the German Peasants' War of the 16th century, for example, which Engels analysed as one of the beginnings of the modern class struggle, demands were put forward by the popular movement for an elected committee which would protect the common woods, in order to prevent their privatisation or despoliation.[21]

This process of the expropriation of the commons and the progressive transformation of precapitalist into capitalist relationships continues apace today. In countries such as China, India or Brazil, tens of millions of people have been forced off the land over the last twenty years by factors such as the concentration of private ownership, to work in the city as waged labourers. Today, people are trying to find a solution to the climate crisis which is compatible with private ownership, yet the

privatisation of the commons is continuing at an ever deeper level: even the air has now become a quasi-commodity through emissions trading in the context of the Kyoto Protocol.[22]

The limits of nature

Every so often it is claimed that Marx was a technological optimist, who had boundless confidence in the development of the 'productive forces'. Such interpretations can certainly be supported by a number of statements made by Marx which tend to be highly productivist, and should simply be rejected. The term 'productive forces' as such is very vague, blurring the distinction between sustainable and unsustainable, and liberating and oppressive forms, for instance of technology.[23] However, Marx does link the growth of the productive forces with "the multi-faceted development of the individual": productive forces thus consist of much more than just technology. He also shows how technology is not socially (or ecologically) neutral. Yet there are a number of passages in which Marx took little account of this. The Belgian Marxist Ernest Mandel argued that the 'productive forces' were increasingly becoming 'destructive forces', but he too failed to analyse this with greater precision, or to formulate concrete political conclusions in terms of how to change these forces or to tackle with their destructiveness.

A linked issue that critics have pointed out is that Marx supposedly lacked any concept of the limits of nature. As a man of the 19th century, Marx can of course hardly be called an ecologist. Yet a corner piece of his economic theory, the doctrine of land rent, is rooted in the notion that the earth is finite.[24] Marx notes that

agricultural prices on the market are determined by the production costs on the least fertile fields. This means that anyone working on more fertile soil, and hence producing more efficiently, can amass a surplus profit (resulting in a concern to make the land 'more productive' in the short term using pesticides, machines, genetically modified seeds and so on, in order to amass as much surplus profit as possible). This is what he calls 'differential rent,' to be distinguished from absolute rent. This last type of rent springs from the monopolisation of the access to or supply of land (and its resources) by landowners, in other words, from the fact that there is no longer land that is not privately appropriated. If there were no limits to the earth, rent of this kind would be impossible, and the urge to privately appropriate as many natural resources as possible would of course become completely superfluous. It is on the basis of the limits of nature that those who appropriate it privately can impose conditions on the rest of the population.

Daniel Tanuro has demonstrated that it is not at this point that Marx's ecology displays shortcomings.[25] Marx did indeed take the limits of the earth as his basis, and showed how the privatisation of the commons was responsible for the metabolic rift. He went on to show how the appropriation of the forests and the land was followed by that of the mines (and how the ground rent was followed by a mine rent). The available reserves of coal, and later natural gas and oil, thus became private property, and yield enormous rents.[26] This is big business: the petroleum rent today is a cool 1,000 to 1,500 billion euros per year.[27]

However, the problem is that Marx seemed to regard this ongoing private appropriation as a continuous process. According to Tanuro, he failed to see that there is a fundamental difference between the capitalist use of wood (and other similar natural products) as an energy source, and that of coal: it is the difference between

energy as flux and as stock, or, in other words, that between potentially renewable and exhaustible energy sources. This is a crucial distinction. It is possible to repair the capitalist depletion of wood through “rational regulation of the metabolism”: within a certain cycle, a forest can be regrown (although the primeval forest cannot really be regenerated). However, the stock of coal, gas and oil is being irreversibly depleted, and the climate is being irreparably damaged.

This has far-reaching consequences. Marx was still suggesting that capitalism would create the conditions for a higher, socialist form of society. The point was to start regulating on rational principles the metabolism that had been disrupted under capitalism instead of leaving it to the mercy of the blind laws of capital. Today, however, the observation ought to be made that stopping the capitalist accumulation machine and repairing the metabolism will require more than just ‘adjustments’ to the manner in which the present-day economy deals with nature. A sustainable society will need to transform fundamentally the energy system and the technology on which it is based. A “rational regulation of the metabolism” is simply not possible on the basis of finite energy resources. The “growth of (capitalist) productive forces” therefore does not create the basis for a “rational regulation of the metabolism” under socialism, but rather undermines the possibility of a sustainable society. Hence the transformation of capitalism into another, sustainable form of society will need to be more profound than just the modification of property relations. I will discuss this in more detail shortly.

Ecological economics

Eco-Marxists believe they have good reasons to argue that it is possible to reconstruct Marxist theory on the basis of an analysis of the metabolism between man/society and nature. According to Paul Burkett, this places Marxism in the camp of ecological economics. This branch of economic thinking about ecology arose fairly recently from opposition to the dominant environmental economics.[28] The starting point of ecological economics is in fact fairly clear: the earth is limited, thus the circulation of material and energy from the earth into the economy (and back) must be limited too. Ecological economists such as Herman Daly for a long time thought that Marxism lay outside their field and had no contribution to make to it: Marxism allegedly lacked any notion of the limits of nature, and was incompatible with the laws of thermodynamics. In his book *Marxism and Ecological Economics. Towards a Red and Green Political Economy,* Burkett seeks to refute these criticisms and argues that Marxists and ecological economists have common perspectives.

Burkett considers in detail a number of controversies within the field of ecological economics. Above all, he seeks to liberate it from various untenable liberal views which have crept into it. Thus he takes up the controversy about value (and hence price), criticising some ecological economists who advocate a biophysical or bio-energetic theory of value. By making price an expression of energy flows in nature, they risk turning price (and hence the market) into something inherent to nature, whereas the market in fact only arose through a historical process of increasing alienation from nature. The concept of 'natural capital' which is employed by some ecological economists, suffers from the same problems.

While people live from the use values they find in nature or produce themselves, there are no prices or markets in nature. The fact that nature is having a price put on it and is hence being privatised shows how alienated people have already

become from the communal conditions of society's existence, and how they are starting to treat nature as a commodity. It is the logic of commodities and money which helped pave the way to environmental catastrophe: money is divisible, perfectly mobile and can be accumulated without limitation, whereas this is not the case with nature. It is no coincidence that the properties of fossil fuels closely resemble those of money: these fuels make it possible to produce wherever (regardless of local ecological conditions) and whenever (24 hours a day) one wants.[29] Burkett stresses that the struggle against monetary logic is both a social and an ecological one. For both nature and the workers, it is not the price (the exchange value) of goods that is important, but its use value. Quantification and the formation of abstractions out of concrete human and ecological needs must be combated time and time again.

The main point of controversy within ecological economics relates to the alternatives, of course. Herman Daly argues in favour of quotas for the extraction of raw materials from nature and for human reproduction. The problem with the market mechanism, according to Daly, is not that it distributes the available raw materials in an unecological manner (allocation), but that it is blind to the problem of scarcity and scale. He therefore contends that a collective decision must be taken to limit the scale of the economy. Within this framework, the market can then ensure optimal allocation.

However, the question is whether the problem of scale and that of allocation can be separated so easily. Burkett points out that the market as it exists today inevitably leads to increases of scale. Naturally, there is a difference between the market on the one hand and capitalism on the other: the market had already existed for thousands of years before capitalism arose in the late 18th century, and will

doubtless continue to play a role for a considerable time to come even in postcapitalist societies. What set the capitalist mode of production in motion was the emergence of two specific markets: that of the commodity of labour, and that of the means of production. For ecological economics, it is vital to realise that where these two markets exist, economic growth is inevitable over an extended period, and restricting the economy to a given maximum size impossible. This is because a capitalist invests purely in order to make a profit, i.e. to accumulate capital, the reinvestment of which inevitably implies an ever higher throughput of matter and energy.

Naturally, every capitalist must try to produce more efficiently than his competitors, which among other things may mean that the throughput of material and energy per product unit is slightly reduced. But this is generally associated with an increase in the total quantity of products, and hence very likely with an increase in global throughput. Economic growth is virtually always coupled with higher throughput. To use technical jargon, the entropy of capitalism is at odds with the entropic requirements of sustainable development. The required cessation of growth or downscaling of the material economy is simply impossible within a capitalist framework. Anyone who attempts them will inevitably end up arguing in favour of a ‘strong state’ with an enormous control apparatus with which to keep all businesses and consumers to their imposed quotas, whereas market logic means that it is very much in their interests to disregard such quotas.

This contradiction between capitalist growth and the needs of the ecosystem naturally leads to crisis phenomena. According to Paul Burkett, a distinction has to be made between two types of crisis. Firstly, there are the ecological crises which threaten to squeeze the accumulation of capital, e.g. through the depletion of important raw materials. Secondly, there is the crisis caused by capitalism in the

ecosystem and in the conditions for sustainable human development as such, examples being climate change or loss of biodiversity.[30] As Burkett argues, the problem is that this second form of general ecological crisis does not necessarily lead to the first form of internal economic crisis. As long as capitalism can find labour and raw materials (of any kind), it can continue to accumulate. Capitalism can carry on for a long time, despite the increasing environmental damage it is causing. Hence the phenomenon we see today: although the global ecological footprint represents around 120% of the earth's available biophysical capacity, the capitalist mechanism seems more powerful than ever. If the system is profoundly disrupted by the environmental crisis at some point in the future, it may be too late. A deliberate effort to prevent things from drifting that far is therefore vitally important.

Towards ecosocialism?

Now that neoliberalism is eroding the social rights for which the workers' movement struggled, and after the horrors of Stalinism, the project of the Left is in deeper crisis than ever. At the same time, the need for an alternative to the current economic accumulation machine is greater than ever. Instead of creating the conditions for a 'higher' form of society, capitalism today is undermining the basis for a sustainable, egalitarian society. It burdens every post-capitalist social project with a weighty ecological legacy, but also with technologies, lifestyles and institutions which cannot form the basis for a different, sustainable society.

This is why there is a need to be even more radical, to get back to the roots even more. In order to repair the profound disruption of the metabolism, it is not

enough to change property relations and introduce democratic control over the economic system. Far more profound action is needed against the legacy that capitalism has bequeathed us. In the recent debate on so-called 'ecosocialism,' a number of important ideas on how to tackle this are put forward.[31]

Firstly, a post-capitalist project will need to dismantle and replace large parts of the current production apparatus, just as during the Paris Commune in 1871 the workers destroyed the centralised state apparatus in order to replace it with a decentralised model that made more democratic participation possible. Merely changing property-owning relations, even in the most democratic sense, can no longer suffice. This is in fact the starting point for the debate about ecosocialism.[32] Of course, many Marxists have argued in the past that the transformation of property relations does not suffice, and that more far-reaching interventions into the very structure of technology and productive cooperation are necessary in order to create different, more humane and emancipator social relations within the productive apparatus.[33] A similar kind of argument is valid from an ecological point of view. Sectors such as automobile manufacturing or the centralised production of energy on the basis of fossil fuels or of nuclear energy need to be dismantled and replaced by some alternative (public transport, a decentralised system of renewable energy, etc.). Today, however, they are privately owned and represent enormous power, so that the community has scarcely any control over them. At present we lack the institutions for conducting a broad social debate about which forms of production we do and do not want. The acquisition of such democratic control is thus a requirement if we are to transform and manage these sectors in a planned manner. Moreover, elements of central planning need not constitute a hindrance to a largely decentralised system of self-management in the production units, where the immediate producers, consumer

movements and local communities take care of this management role. On the basis of a democratic process, for example, a centralised decision can be made to dismantle the automobile sector and replace it with the production of trains, an option which could be implemented in as decentralised a manner as possible.

A democratic decision-making process of this kind should of course be partly guided by strong ecological awareness. Secondly, therefore, a fundamental cultural revolution is needed which gives short shrift to the quantitative logic of money and ownership. Such a revolution of consciousness will be all the more necessary in that individuals also need to turn away of their own free will from a number of harmful practices, such as excessive meat consumption. They need to contribute to a social model in which production and consumption is not just reduced, but above all changed, to a 'moral economy' which is based on non-monetary and extra-economic criteria.[34]

Thirdly, the reparation and extension of the commons is vital. In a 'communism of the commons', as many public goods as possible must be withdrawn from private and bureaucratic government control, so that they can be managed on a local, decentralised, democratic basis. Moreover, democratic control in a great many areas generally presupposes a radical extension of the public sphere (public services, the commons, democratic institutions, etc.), and an increase in the amount of time people have available to participate in it. A substantial reduction in working hours contributes to this. This long-standing workers' demand also has a significant ecological dimension. The capitalist response to the increase in productivity lies in producing more in the same working time. By contrast, the socio-ecological strategy of 'enough' consists of stopping producing as soon as genuine needs have been satisfied. The time which is liberated can then be used for participation in democratic

self-management (which is more time-intensive than authoritarian decision-making procedures) and for cultural, artistic and other social occupations, which place less pressure on the ecosystem than the so-called leisure activities in the current consumer society. It must once again be possible for free time to become liberated time!

Fourthly, such a society will have to try to eliminate forms of division of labour in society as far as possible: those between the social classes, between manual and intellectual work, and between town and country (and by extension between North and South).[35] Among other things, this presupposes downscaling (e.g. the restoration of small-scale organic farming) and the radical relocation of production and consumption from the current, absurd system of global trade.

Obviously, this debate is still in its infancy. It is not about imagining a sort of utopia, but about developing a number of genuine approaches to tackling the environmental crisis. Not all problems will be solved at a stroke in a democratic, ecosocialist society, of course, and deep conflicts about policy choices will remain. Even so, the tools which are needed to save the earth will be handed over to the community in this way.

Naturally, the hardest question, about which little literature exists, is the strategic one: how should the environmental movement be connected with the workers' movement, and how should class consciousness be impregnated with environmental consciousness? This question can only be answered through collective practice and discussion. This is not made any easier by the fact that the workers' movement has been pushed by neoliberalism into a defensive struggle for the retention of employment. The crucial point is to link the ecological and the social question: this is the only way in which a strategy of radical societal change can also gain support from a majority in society and actively engage large numbers of people in a process of

change. A programme and a practice need to be found to link social redistribution, democratisation and the environment systematically: not linear price increases for basic goods, for instance, but public solutions. These may range from the establishment of new public services for the insulation of homes and public investments in renewable energy or public transport to the reconversion of the automobile industry to the production of trains or trams, with the retention of jobs.

Naturally, there are a number of points of departure today from which a collective practice can be developed: workers' control with regard to environmental aspects of the production process, the struggle for public services and for the rescue of the commons, the reduction of working hours as a demand based on 'enough'... Every minor triumph in such a field can provide self-confidence, can raise socio-ecological consciousness, can demonstrate that it is possible to change something, and might be a step towards more. Every minor triumph can become the basis for a higher consciousness and a further demand. For most of these issues, however, the debate and the experimentation have hardly got off the ground as yet.

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[1] Daniel Tanuro, *Marx's concept of social metabolism and ecosocialist responses to climate change.* Speech at the event 'Ecosocialism or Barbarism', Socialist Resistance, London, 2 December 2006.

[2] E.g. Ernest Mandel provided a number of interesting concepts and insights (e.g. about how productive forces have turned into destructive forces or the dialectic between partial rationality and global irrationality in *Late Capitalism* (London: NLB, 1975)), but never drew the far-reaching conclusions about the necessity of limiting growth and fundamentally transforming the technical apparatus as some ecosocialists do now.

[3] Jacques Derrida, *Spectres de Marx. L'état de la dette, le travail du deuil et la nouvelle Internationale* (Paris : Galilée, 1993).

[4] One of the pioneering journals covering this debate is the invaluable *Capitalism, Nature, Socialism.*

[5] John Bellamy Foster, *Marx's Ecology. Materialism and Nature* (New York: Monthly Review Press, 2000). Foster was one of the most important initiators of the recent debate on ecological Marxism. In the last years, he continued to feed this debate through numerous books, such as *The Vulnerable Planet* (New York:

Monthly Review Press, 1999); *Ecology against Capitalism* (New York: Monthly Review Press, 2002); *The Ecological Revolution. Making Peace with the Planet* (New York: Monthly Review Press, 2009).

[6] Karl Marx, *Capital Volume I* (Moscow: Progress Publishers, 1974), p. 474.

[7] Karl Marx, *Capital Volume III* (Moscow: Progress Publishers, 1978), p. 813.

[8] Marx, *Capital Vol. I*, pp. 474-475.

[9] Foster, *Marx's Ecology*, p. 158.

[10] Ibid., p. 156.

[11] Quoted in ibid., p. 159.

[12] Marx, *Capital Vol. III*, p. 776

[13] Karl Marx, *Grundrisse. Foundations of the Critique of Political Economy* (Harmondsworth: Penguin Books, 1977), p. 489.

[14] Paul Burkett, *Marxism and Ecological Economics. Towards a Red and Green Political Economy* (Leiden: Brill, 2006), p. 84.

[15] Karl Marx, *Economic and Philosophical Manuscripts of 1844* (New York: International Publishers, 1976).

[16] Cf. Elmar Altvater, *Is there an Ecological Marxism?* Lecture at the Virtual University of CLACSO – Consejo Latinoamericano de las ciencias sociales, 2003.

[17] That was one of Mandel's strongest ecological critiques on capitalism in his book *Late Capitalism*.

[18] In his *Critique of the Gotha Programme* Marx criticises the German Workers' party, which argued in its programme that labour is the source of wealth. According to Marx, this is equally true of nature, and labour itself is in fact a natural force. Karl Marx, *Critique of the Gotha Program* (New York: International Publishers, 1970).

[19] "Historical materialism presents itself precisely as an approach to the study of human societies, (…) as (…) ecology applied to *human* populations." Ted Benton, "Marxism and Natural Limits: An Ecological Critique and Reconstruction," *New Left Review* I/178 (1989), 51-86.

[20] Ian Angus, "The Myth of the 'Tragedy of the Commons'," in: Ian Angus, ed., *The Global Fight for Climate Justice. Anticapitalist Responses to Global Warming and Environmental Destruction* (London: Socialist Resistance Books, 2009), pp. 64-75. On the problem of the commons in Marx and the destruction of nature as a result of their privatisation, see also: Daniel Bensaïd, *Les Dépossédés. Karl Marx, les Voleurs de Bois et le Droit des Pauvres* (Paris, La Fabrique, 2007).

[21] Friedrich Engels, *The Peasant War in Germany* (Moscow : Progress Publishers, 1974). Karl Kautsky referred to this demand for an elected commission in his book *Die Agrarfrage. Eine Uebersicht über die Tendenzen der Modernen Landwirtschaft und die Agrarpolitik der Sozialdemokratie* (Stuttgart : Dietz, 1899), pp. 18-19.

[22] Marx argues that the logic of the private appropriation of land "assigns the landlord the privilege of exploiting the terrestrial body, the bowels of the earth, the air, and thereby the maintenance and development of life." Marx, *Capital Vol. III*, p. 774.

[23] The liberation of the 'green' productive forces from the capitalist straitjacket is absolutely essential to rescuing the environment. Cf. Daniel Tanuro, "Marx, Mandel et les limites naturelles," In : [*Europe Solidaire Sans Frontières*] - http://www.europe-solidaire.org/spip.php?article2475.

[24] For an extensive discussion, see David Harvey, *The Limits to Capital* (London: Verso, 2006), pp. 330-372.

[25] Daniel Tanuro, "Energie de Flux ou Energies de Stock ? — Un Cheval de Troie dans l'Ecologie de Marx," In : [*Europe Solidaire Sans Frontières*] - http://www.europe-solidaire.org/spip.php?article8382

[26] There are two requirements for receiving a rent. Firstly, a rent is only possible if there are natural limits. No such rent may be obtained on solar energy, which is unlimited in principle, although profits can of course be made through the sale of solar panels. Secondly, there must be some form of private appropriation, and hence of a monopoly of ownership within a small group. This is the backdrop of the highly centralised (and inefficient) character of the current energy system: the decentralisation of power generation (everyone having their own windmill or solar panels on the roof) would make such a monopoly, and hence the rent, impossible. The choice of the current centralised power system is thus not an incidental or neutral matter, but fits with specific capitalist interests. Incidentally, note that the photovoltaic effect had been discovered as early as 1839, and that technologies based on solar heat were available by the late 19th century. The choice of certain technologies over others is always a socio-political one.

[27] Daniel Tanuro, "Energie Fossiles, Climat et Anticapitalisme, " In : [*Europe Solidaire Sans Frontières*] - http://www.europe-solidaire.org/spip.php?article5568. Compare this with the cost estimated in the famous Stern report for restricting the temperature increase due to climate change to a maximum of 2°C: between 1050 and 1200 billion dollars per year.

[28] For a good introduction, see Herman Daly, *Ecological Economics and Sustainable Development* (Cheltenham: Edward Elgar, 2007).

[29] Cf. Elmar Altvater, "The social and natural environment of fossil capitalism," in: Leo Panitch and Colin Leys, eds., *The Socialist Register 2007: Coming to Terms with Nature* (Monmouth: The Merlin Press, 2006), pp. 37-59.

[30] Burkett, *Marxism and Ecological Economics*, p. 136.

[31] E.g. Joel Kovel, *The Enemy of Nature: The End of Capitalism or the End of the World?* (London: Zed Books, 2007); Jane Kelly and Sheila Malone, *Ecosocialism or Barbarism?* (London: Socialist Resistance Books, 2006); Michael Löwy, ed., *Ecologie et Socialisme* (Paris: Syllepse, 2005). An international ecosocialist network was set up in 2001 with the launch of an Ecosocialist Manifesto, written by Joel Kovel and Michael Löwy (www.ecosocialistnetwork.org).

[32] Cf. Michael Löwy, "Eco-socialism and Democratic Planning," in: Leo Panitch and Colin Leys, eds., *The Socialist Register 2007: coming to terms with nature* (Monmouth: The Merlin Press, 2006), p. 294-309.

[33] E.g. Cornelis Castoriadis, *L'Institution Imaginaire de la Société* (Paris: Seuil, 1975); André Gorz, *Le Socialisme Difficile* (Paris: Seuil, 1967).

[34] Michael Löwy, "What is Ecosocialism?," in: Jane Kelly and Sheila Malone, eds., *Ecosocialism or Barbarism?* (London: Socialist Resistance Books, 2006), p. 6.

[35] The distinction between manual and intellectual labour, and especially the specialisation in intellectual activity, in a certain way contributes to a culture in which dependence on nature is misrecognised.